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A. A. BRENEMAN, Editor.

ABSTRACTOR FOR AMERICAN PATENTS:

J. F. GEISLER.

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The Regular Monthly Meeting is held on the first Friday of every month, except July and August, at 8 P. M.

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Members are requested to give notice of any change of address, or failure in the delivery of the Journal. All communications relating to the Journal should be addressed to the Editor.

A. A. BRENEMAN, 97 Water St., New York.

REGULAR MEETING, October 7th, 1892.

The regular meeting of the Society was held in the Law Lecture Room of the University. Vice-President Breneman in the chair.

The minutes of the Rochester (general) meeting were read and accepted.

The regular order of business was preceded by a discussion upon the subject of the spelling of chemical terms.

Prof. McMurtrie moved that the subject be taken up at the next general meeting. Carried.

Prof. Hale then read the revised constitution as reported by the Committee on Revision.

The meeting was then adjourned.

DURAND WOODMAN,
Recording Secretary.

AN INDEX TO THE LITERATURE OF STEREOCHEMISTRY,

WITH A NOTE ON THE STEREOCHEMISTRY OF CREATININES.

By Dr. Arnold Eiloart.

In compiling this index I have been much indebted to the numerous references in Van 't Hoff-Meyerhoffer's "Stereochemie," most of which, with amplifications and some corrections, are incorporated here; also to the bibliography, by Prof. Warder, of which I have made free use. To Dr. Henry Carrington Bolton my thanks are due for valuable advice as well as for bibliographical data; in particular for calling my attention to Swedenborg's contribution to stereochemistry.

PLAN OF INDEX.

The bibliography of this subject published two years ago by Warder having been classified according to subjects, I have arranged the present list in the order of the authors' names, hoping that thus the maximum benefit may accrue from the existence of both indexes, which may be used together. But in order that this index may be capable of independent use as a guide to the literature of any given branch of the subject a symbol is prefixed to each paper, excepting only those of scope too wide to admit of such brief indication of their subject matter. A list of symbols precedes the list of papers.

For clearness, only the main subject of each paper has been in-

dicated by a symbol; thus a paper marked ⬡ may treat not only of ring-configurations but of rings containing an asymmetric carbon-atom (C); yet if ring-configuration is the main subject, the symbol C will not appear.

Whether or not a paper on optical activity bears mainly on the question of the asymmetric carbon-atom is often difficult to decide. For most cases I have settled the question by marking with C only papers which were printed after those of Van't Hoff and Le Bel in 1874. In doing this I have simply accepted as a separate epoch the period which these chemists made such by their work. Earlier papers on the action of substances on polarized light are marked L for "Light."

As the great bulk of stereochemical investigation has been massed together in point of time, a chronological index seemed useless; on the other hand many a reader may wish to consult the literature of a particular period or to see at a glance the general chronological distribution of the literature; the few lines necessary to satisfy such readers have therefore been added in the form of a classification of publications into periods.

Finally, since a specially helpful form of guidance consists in information as to other guides, and since so many must make compactness and not originality the criterion of what they shall read, a list of reviews of the main subject and of its chief branches is given.

LIST OF SYMBOLS AND CONTRACTIONS.

C = stereochemistry of carbon.

C = asymmetric carbon.

$\overset{C}{|}$ for $\overset{C}{|}$ = ethane derivatives.

$\overset{C}{||}$ for $\overset{C}{||}$ = ethylene derivatives.

= "Cis-trans" isomers.

= Benzene and derived rings.

L = Action on polarized light.

N = Nitrogen except pentavalent nitrogen.

N^V = Pentavalent nitrogen.

Ann. = Ann. Chem. (Liebig.)

Ber. = Ber. d. Chem. Ges.

R. = My review of Stereochemistry.[1]

The figures following R indicate the page or pages of the review on which the reference or references preceding R, and placed in parenthesis with it, are given. This affords a ready means of gaining some idea of the contents of the papers so bracketed.

[1] About to appear independently with this index as an appendix.

LIST OF PUBLICATIONS.[1]

1. | Alexander, H.—1888. Ann. **248**, 281. Phenylmalic acids.
2. C Anschütz, R.—1887. Ber. **18**, 1949. The number of inactive malic acids.
   || 1887. Am. Chem. J. **9**, 253; Chem. Ztg. **11**, 1212; Ann. **239**, 161.—1889. (Ann. **254**, 168.—R. 20). Fumaric and maleïc acids.—1890. (Ann. **259**, 145—R. 31).
   | " and Bendix, P.—1890 Ann. **259**, 61. Diphenylsuccinnic acids. Relationship probably same as between the hydrobenzoïns.
   C " and Hintze, C.—1885, Ber. **18**, 1394. Attempt to "double" oxalic acid.
   1887. Ann. **239**, 164. Attempt to "double" fumaric acid.
   || " and Selden, Ch. C.—1887 Am. Chem. J. **9**, 379; Ber. **20**, 1382. Monobromcinnamic acids.
3. C Antrick, O.—1887. Ber. **20**, 310. Cocaïne.
4. ⬡ Armstrong, H. E.—1887 (J. Chem. Soc. **51**, 264.—R. 14).
   || 1888. Ibid. Proc. **54**, 93 (Ref. Chem. News **58**, 240). Plane and axial symmetry.
   ⬡ 1892. Chem. News **65**, 285. New structural formulæ suggested for acids supposed to be stereomeric.[2]
   ⬡

[1] In several instances the references to the *Berichte* given in this index differ from those in the *Berichte* indexes, which contain numerous errors; some of them really *recherchés*.

[2] This word, introduced by Van't Hoff-Meyerhoffer, is used instead of the awkward "stereo-isomeric."

5. || Aronstein, L., and Hollemann, A. F.—1889 Ber. **22,** 481. Addition of H to acetylene compounds.

6. — Ashe, Isaac.—1889. Chem. News **60,** 235. Forms of Atoms.

7. — Aubin, Ch. See Graebe, C.

8. || Autenrieth, W.—1887. Ber. **20,** 1531. Thiophenylcrotonic acids. (E. Baumann's laboratory.)

9. Auwers, K.—1890. "Die Entwicklung der Stereochemie. Theoretische und experimentelle Studien." Heidelberg : C. Winter, pp. 157.

N 1890. Ber. **23,** 399.

| 1891. Ber. 24, 1776. Hydrobenzoïns.

1890 and '91. Ber. **23,** 1600; **24,** 4012. Dimethylglutaric acids.

N " and Dittrich, M.—1889. Ber. **22,** 1996. Structure of benziloximes.

| " and Jackson, Louis L.—1890. Ber. **23,** 1599. Bischoff's dynamic isomerism.

| " and Köbner, E.—1891. Ber. **24,** 1923. Symm. dimethylglutaric acids, etc.

N " and Meyer, V.—1888. Ber. **21,** 784, 3510. Two benzildioximes.

1889. Ber. **22,** 537. Two benzilmonoximes. Ber. **22,** 564. Structural identity of benzilmonoximes.—Ber. **22,** 705. The third benzildioxime.—Ber. **22,** 1985. No isomeric oximes of phenanthraquinone.

| Ber. **22,** 2011. Tetramethylsuccinic acids. Ber. **22,** 3005. Dibasic acids, $C_8H_{14}O_4$.

— Naturwiss. Rundschau **4,** 477–481. Present state of stereo-chemical investigation. (Ref. Chem. Centrbl. [4] **1,** II., 668.

| 1890. Ber. **23,** 101. Formation of anhydrides of acids of succinic series. Facilitated by presence of alkyls.

N Auwers, K., and Meyer, V.—(Ber. **23,** 2063.—R. 43.) Oximes of halogenised benzophenones.—(Ber. **23,** 2403.—R. 44.) Configuration of hydroxylamine.

| (Ber. **23,** 2079.—R. 25.) Ethane derivatives.

N 1891. (Ber. **24,** 3267.—R. 47.) Oximes. Answer to Claus.

Ber. **24,** 4225.—R. 44. Isomeric hydrazones.

N " and Siegfeld, M.—1892. Ber. **25,** 2597. Benziloximes. Testing structural identity.

— Auwers, K. See Fehrlin, H. C.

— " " Krause, A.

— " " Meyer, V.

10. — Bachmeyer, W.—1886. Chem. Centrbl. [3] **16,** 209. Molecular spheres and molecular structure.

11. || Bader, R.—1890. Ztschr. phys. Chem., **6,** 289 (espec. p. 315). Affinity constants.

12. ⟋⟍ Baeyer, A. von.—1870. Ann. Supp. **7,** 1. Mellithic acid.

— 1885. Ber. **18,** 674, (2269.—R. 10). Polyacetylene compounds. (See especially p. 2278.)

1886-91. Ber. **19,** 1797; (**23,** 1272.—R. 10). Ann. **245,** 103; **251,** 257; **256,** 1; **258,** 1, 145; **266,** 169. Constitution of benzene.[1] (R. 14, 26.)

1888. Ann. **246,** 383. Note on L. Meyer's Benzene formula.

1892. Ann. **269,** 145. Constitution of benzene.

13. N Baker, H. B.—1882. Chem. News, **48,** 187. Nitrogen and hydrogen said not to combine in presence of spongy platinum. (But see Johnson, G. S.)

14. Bamberger, E.—1890. (Ann. **257,** 1; J. prakt. Chem. [2] **42,** 188.—R. 14, 15.)

C Ber. **23,** 291. "Doubling" of ac. 1, 5, tetrahydronaphthalene diamine.

15. || Bandrowski, E.—1879. (Ber. **12,** 2212.—R. 18.)

---

[1] A special connection between para-atoms (Claus' formula), said to exist side by side with the general central connection among all six atoms.

16. — Barbieri, J. See Schulze, E.

17. C Baumann, E.—1882. Ber. **15,** 1731. Cystine derivatives. Activity and C disappear together.

" See also Autenrieth, W.

" ——— and Fromm, E.—1891. (Ber. **24,** 1419.—R.15).

18. N Beckmann, E.—1887–'90. (Ber. **20,** 2766; **22,** 429, 514, 1531, 1588; **23,** 1680, 3319, 3331.—R. 43.) Benzaldoximes.

1889. Ann. **250,** 322. Camphor series. (Theory, pp. 360–375.)

— " See Günther, E.

— " See Pleissner, M.

19. — Beckurts, H.—See Otto, R.

20. N Behrend, R.—1890. (Ber. **23,** 454, 1776—R. 38, 45.) N-poles.

" and König, E.—1890. Ber. **23,** 2750. Two isomeric paranitrobenzylbenzaldoximes.

" and Leuchs, K.—1889–'90. Ber. **22,** 384, 613; Ann. **252,** 44; **257,** 203. Hydroxylamine derivatives.

" and Nissen, Detlev.—1892. Ann. **269,** 390. O-chlorbenzaldoximes.

21. C Beilstein, F., and Wiegand, E.—1883. Ber. **17,** 2261. Tiglic and angelic acids.

22. — Bendix, P. See Anschütz, R.

23. C Berthelot, D.—1875. (Bull. Soc. chim. (Paris) [2], **23,** 338.—R. 49.)–1876 and 1878. Comptes rend. **82,** 441, **85,** 1181. Styrolene said to be optically active. Compare Hoff, J. H. van't, also Krakau.

24. — Besredka, A. See Zelinsky, N.

25. | Bethmann, H. G.—1890. (Ztschr. phys. Chem. **5,** 385—R. 25, 28.)

26. L Biot, J. B.—1817. Mém. de l'Académie de Paris[1] **2** 41 (especially pp. 114 *et seq.*). Turpentine vapor optically active.

[1] The date is a better guide than the volume, as the series seem to be confused.

L Biot, J. B.—1818. Ibid **13,** 144(?).[1] Ann. chim. phys. [2] **9,** 372.

1819. Ann. chim. phys., **10,** 63. Optical activity of various substances.

1835. Ibid. **13,** 39. Applications to organic chemistry.

1838. Ibid. **15,** 93. Optical activity of mixtures and combinations.

1838. Ibid. **69,** 22. Polarized light shows difference between isomers.

1839. Comptes rend., **9,** 621. Activity of camphor.—Ibid. **9,** 825. Turpentine. (Comp. Deville.)

1844. Ann. chim. phys. [3] **10,** 5, 175, 307, 385; **11,** 82. Use of polarized light for studying chemical mechanics.

1849–'50. Comptes rend., **27,** 461; **29,** 433; **31,** 601. Reports on Pasteur's work on the tartaric acids.—Ibid. **28,** 321; Camphoric acid (comp. Bouchardat).—Ibid. **29,** 681; Ann. chim. phys. [3] **28,** 215, 351. Rotation by solids.—Comptes rend., **30,** 721; Ann. chim. phys., **29,** 135, 341. Tartaric acids.

Comptes rend. **31,** 101. Ann. chim. phys., **29,** 430. Laws of variation of rotatory power.

1852. Comptes rend. **33,** 549. Report on Pasteur's paper in Ann. chim. phys. [3] **34,** 30.

27. | Bischoff, C. A.—1886–'87. Ber. **19,** 95; **20,** 2988. Substituted succinic acids.

1888. Ber. **21,** 2071 (especially p. 2074). Nitrostilbenes.—Ber. **21,** 2102. Symm. diethylsuccinic acids; especially pp. 2105 *et seq.*

See note on last page.

N Bischoff, C. A.—1889. Ber. **22,** 1774, 1792, 1809. Piperazines and derivatives.

| 1889–'90. Ber. **22,** 3179; **23,** 13. Substituted succinic acids.

|| 1890. (Ber. **23,** 1924—R. 21.)

N (Ber. **23,** 1967—R. 47.) Ber. **23,** 1972. Piperazine group.

| (Ber. **23,** 620, 623, 1464, 3414; **24,** 1041, 1050, 1064, 1074, 1085, 2001.—R. 26, 30-34.) Dynamic isomerism.

1891. Ber. **24,** 2083. Substituted succinic acids.

N " and Hausdörfer, A.—1890. Ber. **23,** 1981, 1987, 1991, 1997, 2003. Piperazine derivatives.

| " and Hjelt, E.—1887 and 1888. Ber. **20,** 2988, 3078; **21,** 2089, 2097, 2102; **22,** 67; **23,** 650. Substituted succinic acids.

| " and Kuhlberg, A. von.—1890. Ber. **23,** 634, 1942. Substituted succinic acids.

| " and Mintz, N.—1890. Ber. **23,** 647, 653, 656, 3410. Substituted succinic acids.

| " and Nastvogel, O.—1889. Ber. **22,** 1783, 1786, 1804.

N 1890. Ber. **23,** 2026, 2031, 2035, 2040, 2047, 2051. Piperazine derivatives.—Ber. **23,** 2055. Attempts to prepare rings containing two nitrogen and two, three or six carbon atoms.

| " and Rach, C.—1885–'86. Ber. **18,** 1202; Ann. **234,** 54 (especially p. 86). Symm. dimethylsuccinic acid.

N " and Trapesonzjanz, Ch.—1890. Ber. **23,** 1977. Diphenylpiperazine.

| " and Voit, E.—1889–'90. Ber. **22,** 389; **23,** 639, 644. Symm. dimethylsuccinic acids.

| " and Walden, P.—1889. Ber. **22,** 1812, 1819. Disubstituted succinic acids.

| Bischoff, C. A., and Walden, P.—1890. (Ber. **23,** 1950. —R. 7.)

28. II Blank, A.—1888. (Ann. **248,** 1.—R. 24.) Members of the stilbene group. (Communicated by Wislicenus, J.) Compare Eiloart, A., and Redzko, W. G.

29. II Bleibtreu, H.—1846. Ann. **59,** 183. Cumaric acid.

30. C Börnstein, E., and Herzfeld, Al.—1885. Ber. **18,** 3353. Trioxybutyric acid.

31. — Boltzmann, L.—1889. Verein deutsch. Naturforscher, Sept. 21. (Ref. Chem. Centrbl. [4] **1,** II, 677.) Relation between size of molecule and space occupied by the valences.

32. — Bosshard, E. See Schulze, E.

33. L Bouchardat, G.—1843. Ann. chim. phys. [3] **9,** 213. Optical activity of alkaloids.

1844-'45. Comptes rend. **18,** 298; **20,** 1635. Optical activity of salicine, etc.—Ibid. **19,** 601, 1174. Amygdaline and amygdalic acid.

1849. Comptes rend. **28,** 319. Camphoric acid. Comp. Biot.

1872. Ibid **74,** 665. Dulcite derivatives.

C " and Lafont.—1887. Comptes rend. **105,** 1177. Borneols.

34. N Braun, E.—1889. Ber. **22,** 557. Benzilmonoxime.

35. — Brown, F. D.—1881. Chem. News, 44, 195. Affinity and valence.

36. — Browne, G. M. See Michael, A.

37. — Bredig, G. See Will, W.

38. C Bremer, G. J. W.—1880. Ber. **13,** 351. Recueil trav. Chim. **4,** 180. "Doubling" of malic acid.

1885. Ibid. **6,** 255. Effect of different solvents on specific rotation.

C " and Hoff, J. H. van't—1876. Ber. **9,** 215. Optical activity disappears with C.

39. || Bruck, P.—1891. Ber. **24,** 4118. Addition of iodine to unsaturated acids.
1892. Ber. **25,** 503. Correction of above.

40. || Brühl, J. W.—1881. Ber. **14,** 2742. Citraconic and mesaconic acids.
⬡ 1887. Ztschr. phys. Chem. **1,** 307; Ber. **20,** 2288. Refractive power and constitution of benzene and naphthalene compounds.
— 1892. Ber. **25,** 1952. Trimethylene. Strain-theory.

41. ⟋ Buchner, E., and Dessauer, H.—1892. Ber. **25,** 1147. Carboxyl derivatives of phenyltrimethylene.

42. — Buchstab, L. See Zelinsky, N.

43. N' Burch, G. J. and Marsh, J. E.—1889. (J. Chem. Soc., **55,** 656.—R. 40.)

44. — Caberti, L. See Minunni, G.

45. — Carnelley, T.—1882. Phil. Mag. [5], **13,** 112, 180. Influence of atomic arrangement on the physical properties of substances.

46. | Chalanay, L., and Knoevenagel, E.—1892. Ber. **25,** 289. Stereomeric diphenylsuccinic nitriles.

47. L Chancel, G.—1869. Comptes rend. **68,** 659, 726. Propyl alcohol said to be active; but see Henninger, A.

48. L Chautard, J.—Jsb. Chem. 1863, 556. The two camphoric acids.

49. || Ciamician, G.—1888. Ber. **21,** 1621. Apiol and isapiol.
C " and Magnanini, G.—1886. Gazz. chim. **16,** 390. Two tetrabromides of piperylene.
1888. Ber. **21,** 1434.
" and Silber, P.—1887. Ber. **20,** 2594. Formation of maleïc acid from pyrrol derivatives.

50. — Clarke, F. W.—1875. Am. Chemist, **6,** 81; Proc. A. A. A. S., **24,** 99. Chemistry of three dimensions.

51. — Claus, Ad.—1867. "Theoretische Betrachtungen und deren Anwendung zur Systematik der organischen Chemie." Freiburg.

Claus, Ad.—1882. Ber. **15,** 1405.
1887. Ber. **20,** 1422.
1888–'89. J. prakt. Chem. [2] **37,** 455 (**40,** 69; **42,** 24, 260.—R. 14). Constitution of benzene
N 1891–'92. (Ibid. [2] **44,** 312; **45,** 1, 377.—R. 47.) Oximes.
1892. Ibid [2] **45,** 556. V. Meyer and the oximes. Ibid **46,** 474. Oximes.

52. — Cloez, Ch. See Grimaux, E.

53. C Colson, A.—1892. Comptes rend. **114,** 175. Diacetyltartaric acid.—Ibid. **114,** 417. Answer to Le Bel's paper on the above, *q. v.*

53*a*.— Corselli, G. See Minunni, G.

54. N Cramer, C.—1891. Ber. **24,** 1198. Monoximes of succinic acid.
1892. Oximidoacetic acid, etc. (Hantzsch's laboratory.)

55. — Curtiss, R. S. See Fischer, E.

56. — Debout, C. See Faworsky, Al.

57. C Deichmüller, A., Szymanski, F., and Tollens, B.—1885. Ann. **228,** 95. Optical activity disappears with **C.**

58. || Delalande, Z.—1843. Ann. **45,** 334. Cumaric acid.

59. || Delisle, A.—1891. Ber. **24,** 3620.
1892. Ann. **269,** 72. Transformation of unsaturated acids into their stereomers.

60. N Demuth, R., and Dittrich, M.—1891. Ber. **24,** 3609. Oximes of halogenised benzophenones.

| " and Meyer, V.—1888. Ber. **21,** 264. Isodibromsuccinic acid.

61. — Dessauer, H. See Buchner, E.

62. — Deventer, Ch. M. van. See Hoff, J. H. van't.

63. L Deville,—1839. Comptes rend. **9,** 824. Optical activity of chlorinated turpentine.

64. — Dittrich, M. See Auwers, K.

— " See Demuth, R.

65. N Dollfus, W.—1892. Ber. **25,** 1908, 1926. Oximes. Hantzsch's laboratory.

66. N Dunstan, W. R., and Dymond, T. S.—1892. J. Chem. Soc., **61,** 470. Two acetaldoximes.

67. — Dymond, T. S. See Dunstan, W. R.

68. C Easterfield, T. H.—1891. (J. Chem. Soc., **59,** 71.—R. 6.)

69. || Ebert, G.—1882. Ann. **216,** 139; especially p. 142.
1884. Ann. **226,** 347; especially p. 353. Coumaric acid derivatives. (Fittig's laboratory.) Compare Perkin, W. H.

70. || Eiloart, A.—1890. (Am. Chem. J., **12,** 231.—R. 24.) Chlorine compounds of tolane (Wislicenus' laboratory). Compare Blank, A., and Redzko, W. G.—(J. prakt. Chem. [2] **43,**
| 124.—R. 25.) Relative rotation of carbon atoms.
— 1891. Am. Chem. J., **13,** 559. Solid formulæ; models.

71. C Einhorn, A.—1889. Ber. **22,** 1495. Ecgonin, etc,
1890. Ber. **23,** 979. Dextro-cocaïne and homologues.

72. C " and Marquart, A.—1890. Ber. **23,** 468. Dextro-cocaïne.

73. C Engel.—1888. Comptes rend., **106,** 1734. Aspartic acid doubled.

74. || Erdmann, O.—1890. Ann. **258,** 130. Benzalævulinic acids.

75. || Erlenmeyer, E.—1886. Ber. **19,** 1936. Cinnamic acid series.
1890. Ber. **23,** 3130. Conversion of cinnamic into isocinnamic acid.
C " and Hell, C.—1871. Ann. **160,** 257. Leucine said to be inactive.
|| " and Stockmeier, H.—1886. Ber. **19,** 1936. Cinnamic acid derivatives.

76. C Erlenmeyer, E., Jr.—1891. Ber. **24,** 2830. Phenylbromlactic acids and phenoxyacrylic acids.

77. N Ernst, W. H. See Goldschmidt, H.

78. | Evans, W. P.—1891. (Ztschr. phys. Chem., **7,** 337.—R. 28.) (Naumann's laboratory.)

79. ‖ Faworsky, Al., and Debout, C.—1890. J. prakt. Chem. (**42**, 149.—R. 23.) Bromine derivatives of pseudobutylene.

80. | Fehrlin, H. C.—1889. Ber. **22**, 553. Bidesyls.
N 1890. (Ber. **23**, 1574.—R. 45.) Isomeric hydrazones of o-nitrophenylglycollic acids. (Laboratory of Auwers and Meyer.)

81. C Fischer, E.—1884, '88 and '89. Ber. **17**, 579; **21**, 988, 2631; **22**, 87. Phenylhydrazine compounds with sugars, Pts. I, III, IV and V. For Pt. II, see Fischer and Steche, A.
1889. Verein deutsch. Naturforscher, Sept. 19th and 22d. (Ref. Chem. Centrbl. [4] **1**, II, 672.)
1890. Ber. **23**, 370. Syntheses. Mannonic acid "doubled" (p. 379).—Ib. 799. Synthesis of grape sugar.—Ibid 2114. Lecture on syntheses in the sugar group, with bibliography.—Ibid 2611. Optical isomers of glucose, etc.—Ibid 2625. Acids of the sugar group.—Ibid 3684. Reduction of fruit sugar.
1891. Ber. **24**, 1836, 2683. Configuration of glucose and its isomers (Ref. Am. Chem. J., **14**, 399).—Ber. **24**, 2136, 3622. New isomer of mucic acid.
1892. Ann. **270**, 64. Sugars from glucose with more than six carbon-atoms.

C " and Curtiss, R. S.—1892. Ber. **25**, 1025. Gulonic acids.

C " and Hertz, J.—1892. Ber. **25**, 1247. Mucic acid.

C " and Hirschberger, J.—1888 and '89. Ber. **21**, 1805; **22**, 365, 1155, 3218. Mannose.

C and Meyer, J.—1889. Ber. **22**, 361, 1941. Oxidation of milk-sugar and of maltose.

C " and Passmore, F.—1889. Ber. **22**, 359.
1890. Ber. **23**, 2226. Sugar.

C Fischer, E., and Piloty, O.—1891. Ber. **24,** 4214. The second inactive trioxyglutaric acid.

C " and Stahel, R.—1891. Ber. **24,** 528. Xylose. —Ibid 539: Mannosaccharic acid.—Ibid 2144: Sorbite.

C " and Steche, A.—1887. Ber. **20,** 821. Phenylhydrazine compounds with sugars, Pt. II.

C " and Tafel, J.—1887–'89. Ber. **20,** 2566, 3384; **22,** 97. Synthetic experiments in the sugar group.

1888. Ber. **21,** 1657, 2173. Isodulcite.

82. — Fittica, F.—1888. (Jsb. Chem., 1888, p. 87.—R. 49.)

83. || Fittig, R.—1877–'84. Ann. **188,** 42, 95; **195,** 56; **200,** 21; **206,** 1; **208,** 37, 111; **216,** 26.

1889–'92. Ann. **255,** 1, 275; **256,** 50 (**259,** 1. —R. 23); **267,** 218; **268,** 1; **269,** 1; Ber. **24,** 82. Unsaturated acids.

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$$\begin{matrix} C_6H_5COCOC_6H_5 \\ \| \\ C_6H_5COCOC_6H_5 \end{matrix}$$

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[1] The benzene formula published by V. as new is now ascribed to Marsh, "whose paper was not abstracted in the Berichte;" (but see Ref. Ber. **21,** 879.) Marsh's paper was, however, nine months later than that of Baeyer. See—R. 14 and 48.

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— " See Hoff, J. H. van't.

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CHRONOLOGICAL CLASSIFICATION OF PUBLICATIONS.

The numbers refer to the preceding list. Those occurring in more than one period are printed in heavy type.

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Second Period. 1800 to 1873 inclusive.

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Third Period. 1874 to 1884* inclusive.

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*Von Baeyer began to develop Van't Hoff's theory in 1885, Wislicenus' in 1886.

Fourth Period. 1885* to 1892 inclusive.

1, 2, 3, 4, 5, 6, 8, 9, 10, 11, **12,** 14, **17,** 18, 20, 25, 27, 28, 31, **33,** 34, **38,** 39, **40,** 41, 43, 46, 49, **51,** 53, 54, 57, 59, 60, 65, 66, 68, 70, 71, 73, 74, 75, 76, 78, 79, 80, **81,** 82, **83,** 84, 85, 87, 88, 92, 93, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, **107,** 108, 109, 111, 112, 113, 115, 116, 119, **122,** 123, 125, 126, **127,** 128, 129, 131, 132, 137, 138, 142, 144, 145, 148, 151, 152, 154, 156, 158, 161, **166, 168,** 169, **170,** 173, **174,** 175, 176, 178, **179,** 183, 185, 188, 189, 190, 193, 196, 198, **200, 201,** 202. 203, **204,** 207, 210, 214, 215, 217, 218, 219, 220, 221, 222, **223,** 226, **228,** 229, 232, 233, 235, 237, 239, 240, 244, 245, 246, 253, **254,** 256, 258, 260, 262, 264, 265, **266,** 267, 268, **271,** 274, 276, 277, 278, 279, 283, 285, 286, 287, 291, 293, 296, 297, **298,** 299, 301, 302, 303, **305,** 307, 308, 310, 312, 313, 314, 315, **317,** 318, 321, 322, 324, 326, 328, 329, 330, **332,** 333, 334, **337,** 338, **339.**

LIST OF REVIEWS.

Stereochemistry.

Auwers, K., 1890. "Entwicklung der Stereochemie," pp. 157.

Hoff, J. H. van't. "Dix Années" and its translations: see index. Especially valuable is the latest edition (Van't Hoff—Meyerhoffer, 1892) which is furnished with author- and subject-index.

Meyer, Victor, 1890. Ber. **23,** 567—619. "Ergebnisse und Ziele Stereochemischen Forschung."

Warder, W. B., 1890. Am. Ass. Adv. Sci., **39,** 111–129; with der Bibliography, 130–136.

Benzene and Derivatives.

Noyes, W. A., 1889. Am. Chem. J., **11,** 487–496.

Wachter, V., 1890. Chem. Centrbl. [4] **2,** I, 457, 505, 561, 617, 849.

Wallach, M., 1891. Ber. **24,** 1525, 1579. Terpenes.

Hydroxylamine and Derivatives.

Keiser, E. H., 1889. Am. Chem. J., **11,** 480–487.

Sugars.

Fischer, E., 1890. Ber. **23,** 2114. Syntheses; with Bibliography.

Keiser, E. H., 1889–'90. Am. Chem. J., **11,** 277, **12,** 357, pp. 19.

Stone, W. E., 1892. Am. Chem. J., **14,** 399–405. Configuration of grape-sugar and its isomers.

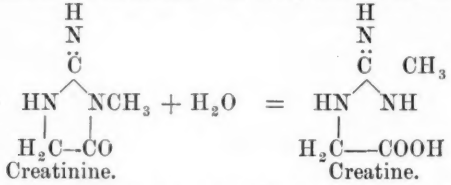
Tautomerism.

The literature of this subject has no place in the index, as its bearing on stereochemistry is too indirect, and it seems sufficient to refer here to the review by

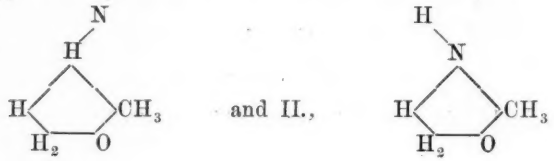
Orndorff, W. R., 1892. Am. Chem. J., **14,** 238–246.

Note on the Stereochemistry of Creatinines.

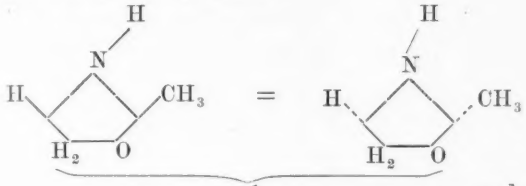
These compounds seem to represent a new class of isomers. According to Johnson there are, including Liebig's base, four distinct substances having the composition of creatinine (besides three which differ in composition from these in that each contains two molecules of water). The fact that no more than one creatine has yet been obtained from the four creatinines shows they are probably identical in structure. In every case, so far as is known,



Now corresponding to this structural formula for creatinine there are, according to the Hantzsch-Werner theory, two stereomers :

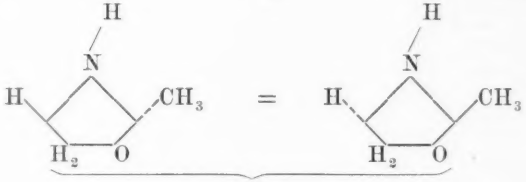


but if the nitrogen valences maintain in this compound what is supposed to be their normal inclination of 120° (compare Bischoff, Ber. **23**, 1974), then the methyl-group and the corresponding hydrogen-atom are not in the plane of the ring, and each of the above formulae represents two compounds in one, of which H and CH_3 are on the same side, in the other on opposite sides of the plane of the ring. I. represents:



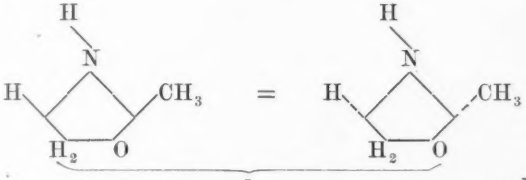
1.

and also



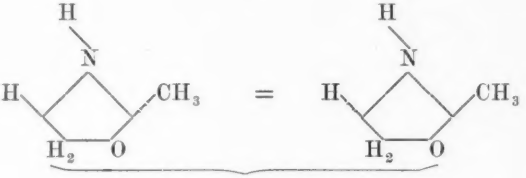
2.

II. represents:



3.

and also



4.

Theoretically, then, as practically, four creatinines are found to exist; and if this theory proves correct we must add to the nitrogen stereomers foreseen by Hantzsch and Werner another class consisting of the nitrogen analogues of the cis-trans isomers of Van't Hoff and von Baeyer. Of this class the creatinines would be the first known representatives.

Chemical Laboratory.
New York Post-Graduate Medical School.

Abstracts of American Patents Relating to Chemistry.

(*From the U. S. Patent Office Gazette.*)

Issued July 5, 1892.

478,093.—Filter. Samuel G. Derham, Cincinnati, Ohio.

478,097.—Electric measuring instrument. Sydney Evershed, London, Eng.

478,098.—Apparatus for the measurement of electrical resistances. Sydney Evershed, London, Eng.

478,099.—Milk tester. Frank B. Fargo, Lake Mills, Wis.

478,106.—Therapeutical coating. Ludwig O. Helmers, Hamburg, Germany.

A coating consisting of starch, water, ichthyol and carbolic acid.

478,110.—Process of reducing zinc or spelter from ores. Christopher James, Swansea, Eng.

A process for the treatment of zinc sulphide ores by "first calcining a part of the ore in a calcining furnace to the form of an oxide, then mixing the calcined ore with rather more than half its weight of crude ore and smelting the same in the hearth of a neutral or slightly reducing reverberatory furnace until reduced to zinc and SO_2, the zinc being volatilized and collected by condensation in a chamber distinct from the furnace."

478,132.—Ammonia distilling apparatus. William L. Rowland, Philadelphia, Pa.

478,134.—Drier for teas and fruits. Benjamin L. Ryder, Chambersburg, Pa.

478,157.—Water filter. Olaf Eastman, San Francisco, Cal.

478,159.—Separating apparatus. Eugene L. Howe, Cleveland, Ohio.

478,176.—Method and apparatus for carbonating beer. John B. Strobaeus and Frederick C. Wackenfuth, Newark, N. J.

478,179.—Strainer for chemical wood pulp. Christian Wandel, Rentlingen, Germany.

478,188.—Process of brewing beer. Charles H. Frings and Bertha O. Frings, New York, N. Y.

The hops are subjected to heat until at least parched, and the hops then treated with water at a temperature above 50° F., and the infusion added to the wort.

478,189.—Method of hopping malt liquors. Charles H. Frings and Bertha O. Frings, New York, N. Y.

The hops treated as above are added to the wort.

478,198.—Carbonic acid gas generator. Patrick J. Maguire, Salem, Mass.

478,203.—Heating apparatus. James F. McElroy, Albany, N. Y.

478,209.—Ore pulverizer. John J. Stuart, New York, N. Y.

478,211.—Oven for oil, gas or gasoline stoves. Henry F. Bartlett, Springfield, Mo.

478,229.—Adhesive. Jerome W. Frank, New York, N. Y.

An adhesive consisting of the liquor of bisulphite fiber or wood pulp and an alkali.

478,230.—Secondary battery. James H. Gerry, Brooklyn, and Charles S. Long, New York, N. Y.

478,238.—Solder for aluminium. Joseph W. Richards, Philadelphia, Pa.

An alloy of aluminium, zinc and phosphor tin.

478,251.—Oil filter. James B. Crane, Newnan, Ga.

478,252.—Grinding mill. George R. Cullingworth, Mount Vernon, N. Y.

478,253.—Pulverizing machine. Uriah Cummings, New Haven, Conn.

478,261.—Filter. Omar H. Jewell, William M. Jewell and Ira H. Jewell, Chicago, Ill.

478,265.—Distilling apparatus. Heinrich Propfe, Mannheim, Germany.

478,268.—Process of making lampblack. Swan P. Wenstran and Erastus R. Blood, Ludlow, Pa.

478,276.—Rheostat. Winslow P. Eayrs, Nashua, N. H.

478,282.—Apparatus for coating metal sheets. Richard Heathfield, Darlaston, Eng.

478,290.—Suction apparatus for paper mills. Ephraim Sanderson and Frank C. Base, Cleveland, Ohio.

478,295.—Liquid fuel burner. Edwin Squire, Montclair, N. J.; George H. Cobb, Elmira; and Forrest M. Towl, Brooklyn, N. Y.

478,305.—Apparatus for the manufacture of water-gas. Joseph Askins, Lima, Ohio.

478,328.—Glass-heating oven. Andrew O. Hurley, Jeannette, Pa.

478,364.—Bunsen burner. Georg Reimann, Berlin, Germany.

478,365.—Filter can. Franz Rerrich, Buda-Pesth, Austria-Hungary.

478,366.—Explosive compound. Samuel Rodgers, San Francisco, Cal.

A compound of picrate of ammonia, nitrate of ammonia and nitroglycerin.

478,373.—Apparatus for automatically regulating temperature. Alexander Shiels, Glasgow, Scotland.

478,401.—Smoke-consuming furnace. Edward Cartwright, Wilber, Neb.

478,407.—Ammonia still. Nathan W. Condict, Jr., Jersey City, N. J.

478,418.—Process of fermenting. Jean Effront, Brussels, Belgium.

478,419.—Wool-washing machine. Walter T. Forbes, Atlanta, Ga.

478,425.—Process of generating gas. William H. Harris, Boston, Mass.

478,458.—Water still. Johannes Peterson and Louis H. Liebeck, New York, N. Y.

478,459.—Method of manufacturing gas. Henry M. Pierson, Brooklyn, N. Y.

478,488.—White lead corroding pit. William H. Wetherill, Philadelphia, Pa.

478,495.—Antiseptic Quinoline. Joseph Ziegler, Biebrich, Germany.

478,499.—Apparatus for scouring and washing skins, etc. Thomas Burns, Edinburgh, Scotland.

478,502.—Fluid support for ore concentrating belts. Frederick G. Corning, New York, N. Y.

478,508.—Process of obtaining extracts from hops. Charles H. and Bertha O. Frings, New York, N. Y.

478,526.—Water supply regulator. Frederick G. Schuerman, Twin Bluffs, Wis.

478,539.—Sewage separating and purifying apparatus. William F. Goodhue, Milwaukee, Wis.

478,543.—Manufacture of compounds of pyroxyline. John H. Stevens, Newark, N. J.

A solution of pyroxyline in a menstruum of benzine, wood-alcohol and acetate of methyl.

Issued July 12, 1892.

478,549.—Fuel gas apparatus. John M. Bailey, Bristol, Va.

478,551.—Magnetic separator. Clinton M. Ball, Troy, N. Y.

478,553.—Compound for filling cob pipes. Albert C. Bausches, Lanark, Ill.

478,571.—Apparatus for the manufacture of gas. André Coze, Rheims, and Alexandre Lencanchez, Paris, France.

478,587.—Mixing or separating machine. Henry M Gabel, Avondale, Ohio.

478,588.—Ore crusher. Edward R. Gale, Chicago, Ill.

478,630.—Black ash dissolver. George M. Newhall and Charles L. Hamilton, Philadelphia, Pa.

478,652.—Apparatus for impregnating liquors in bottles. Emil Stern, Vienna, Austria-Hungary.

478,661.—Electrode for storage batteries. Henri Tudor, Rosport, Luxemburg.

478,664.—Electrode. Armond Vanden Kerckhove, Brussels, Belgium.

478,667.—Mashing apparatus. Adam C. Wagner, Philadelphia, Pa.

478,693.—Process for total combustion. Emil A. Erb, Appleton, Wis.

478,697.—Disinfecting apparatus. Charles B. Hyslip, Bradford, Pa.

478,701.—Thermal alarm. Hosea F. Maxim and Jesse M. Price, Norfolk, Va.

478,733.—Lamp for burning hydrocarbons. Gustav Barthel, Dresden, Germany.

478,736.—Manufacture of butter. Walter Cole, London, Eng.

478,737.—Apparatus for testing milk. Modestus J. Cushman, Waterloo, Iowa.

478,780.—Fire proof paint. William Church, St. Paul, Minn.

Consists of linseed oil, lime water, borax, glue sizing, a mineral paint and a suitable drier.

478,788.—Electrical thermostat. William L. Denio, Rochester, N. Y.

478,819.—Explosive compound. Addison C. Rand, New York, N. Y.

478,844.—Nitro-glycerin blasting powder. Lewis Brown, Landing, N. J.

478,865.—Electric time alarm. John Jacobi, Brooklyn, N. Y.

478,870.—Detergent paste. Joseph Judge, Pittston, Pa.

478,871.—Dental vulcanizer. John Johnson, St. Louis, Mo.

478,892.—Transfer paper and composition for coating the same.

The absorbent coating is composed of glycerin, carpenters' glue, Russian glue, agar agar and sirup.

478,906.—Feed pipe for vacuum pans. Henry Basanta, Ponce, Porto Rico.

478,907.—Process of reducing metals. Henry S. Blackmore, Mount Vernon, N. Y.

478,908.—Furnace for reducing metals. Henry S. Blackmore, Mount Vernon, N. Y.

478,922.—Amalgamator. William J. Connors and William W. Eddy, Grass Valley, Cal.

478,951.—Plaster. Charles Casteel, St. Louis, Mo.

A composition consisting of water-lime, gypsum, coke and brick dust.

478,955.—Compound of sulphureted oils. Walter D. Field, Milburn, N. J.

A compound of glycyl or glyceryl ethers, combined with sulphuric acid to form sulpho-fatty acid compounds and pyroxyline or nitro-cellulose.

478,971.—Machine for extracting gold from pulverized ores. Thomas C. Simonton, Paterson, N. J.

Issued July 19, 1892.

478,980.—Apparatus for recovering alkali. Henry Blackman, New York, N. Y.

478,981.—Apparatus for and process of recovering alkali. Henry Blackman, New York, N. Y.

479,018.—Ore and coal crusher and separator. Samuel B. Price, Jr., Charles E. Martin and Benjamin Purser, Brookwood, Ala.

479,019.—Process of hardening objects made of crude gypsum. Carl Reimer, Halle, Germany.

The objects are dried by the application of heat and then steeped in a solution of hydrate of barium and afterward in a solution of oxalic acid.

479,021.—Enameled brick, and process of making the same. Isaac T. Rue, Matawan, N. J.

479,060.—Composition of matter for plastering. Edward W. Dickie, Clyde, N. Y.

479,100.—Smoke consuming furnace. Robert L. Walker, Boston, Mass.

479,101.—Rheostat. John Waring, Manchester, Conn.

479,115.—Annealing furnace. Alfred A. Cowles, New York, N. Y., and Joseph F. Gilpin, Ansonia, Conn.

479,130.—Process of separating yeast cells. Rudolf Allert, New York, N. Y.

479,140.—Amalgamator and ore concentrator. Lavoisier C. Moreland, Ogilby, Cal.

479,188.—Means for preventing explosions in mills. Charles Kaestner, Chicago, Ill.

479,189.—Brewer's mashing machine. Charles Kaestner, Chicago, Ill.

479,190.—Beer apparatus. Frank M. Boiteaux, Cincinnati, Ohio.

479,193.—Process of testing milk. Henry Leffmann and William Beam, Philadelphia, Pa.

Process for separating the fat from milk by adding a mixture of alcohol and hydrochloric acid to the milk, then heating the mixture by adding sulphuric acid, and finally imparting to the containing vessel centrifugal motion.

479,238.—Air supplying device for gas machine. Edgar B. Badlaw, San Francisco, Cal.

479,243.—Apparatus for manufacturing paper pulp. John B. Carter, Kokomo, Ind.

479,250.—Apparatus for clarifying sugar solutions. Eugene W. Deming, New Orleans, La.

479,260.—Air compressor. Thomas F. Farrell, Paterson, N. J.

479,263.—Art and apparatus for making parchmentized fiber tubes. Robert P. Frist, Wilmington, Del.

479,264.—Art and apparatus for making parchmentized fiber tubes. Robert P. Frist and Charles G. Rupert, Wilmington, Del.

479,267.—Apparatus for separating dust from air. Pieter Van Gelder, Sowerby Bridge, England.

479,271.—Steam condenser. Charles Grohman, Linoleumville, N. Y.

479,277.—Fluid meter. Frederic W. Holt, St. George, Canada.

479,279.—Ore concentrator. Gottlieb D. Husemann, St. Louis, Mo.

479,290.—Process of treating nickel matte. Pierre Manhes, Lyons, France.

479,293.—Process of manufacturing gas. Frank D. Moses, Chicago, Ill.

479,298.—Bottle filling apparatus. Michael J. McHugh, Jersey City, N. J.

479,305.—Manufacture of photographic films. Henry M. Reichenbach, Rochester, N. Y.

479,365.—Process of plating clay with glass and in articles made accordingly. Arthur A. Houghton and Robert D. Haines, Corning, N. Y.

479,367. } Means for utilizing heat of lamps. Alexander S. H. and Anna
479,368. } Johnston, Columbiana, Ohio, and James G. Thompson, New Brighton, Pa.

479,378.—Combined pump and mixer. Albert M. Phillips, Lockport, N. Y.

479,381.—Liquid purifying device. Frank K. Way, Dayton, Ohio.

479,383.—Apparatus for blacking and dyeing. George Young, Winton, and Frank Pearn, Gorton, England.

Issued July 26, 1892.

479,402.—Food product and method of making the same. Samuel Crump, Montclair, N. J.

A non-fibrous food compound, composed of the natural ingredients of the cocoanut deprived of the fibrous portions of the nut, having added thereto sugar and the milk of the cocoanut and reduced to a condensed or dessicated form by evaporation *in vacuo*.

479,403.—Filter. John J. Curran, Toledo, Ohio.

479,405.—Garbage or refuse crematory. Alfred G. Delanoy, New York, N. Y.

479,408.—Reduction of iron ore. Charles J. Eames, New York, N. Y.

The iron is intimately mixed with a bituminous reducing agent termed "brea" and the mixture reduced in a suitable furnace.

479,419.—Apparatus for cooling malt liquors. Clarence C. Hanford, Medford, and Charles D. Stanford, Boston, Mass.

479,421.—Apparatus for manufacturing malt. Charles Hauptmann and Joseph Schwarz, Chicago, Ill.

479,437.—Charging machine for furnaces. Johan F. Lundahl, Homestead, Pa.

479,439.—Fluid pressure valve. Harry G. Manning, Watertown, N. Y.

479,451.—Machine for making cement pipes. Emanuel Oehrle, Omaha, Neb.

479,453.—Process of separating particles of different degrees of specific gravity. Orrin B. Peck, Chicago, Ill.

479,454.—Generation of steam power. Cassius C. Peck, Warsaw, N. Y.

479,455.—Process of separating powdered or finely divided particles, etc. Orrin B. Peck, Chicago, Ill.

479,456.—Centrifugal ore separator. Orrin B. Peck, Chicago, Ill.

479,462.—Pressure regulating valve. Carl A. Rempen and Emil Andre, Hanover, Ger.

479,489.—Process of enriching lead fumes. Arthur Chanute and Malvern W. Iles, Denver, Col.

The metallic fumes are screened and saved as well as the solid particles from lead reducing furnaces. Sulphide of silver is spread between layers of the fumes and the latter ignited and the resultant solid mixture further treated in furnaces.

479,494.—Milk cooler. William C. Eberhardt, Plymouth, Wis.

479,496.—Apparatus for reducing bituminous rock. Archibald Ford, Golden Gate, Cal.

479,515.—Olive dye. Richard Lauch, Elberfeld, Germany.

479,553.—Gas governor. Samuel G. Cabell, Washington, D. C.

479,557.—Electroplating toy apparatus. Edward A. Clark, Boston, Mass.

479,562.—Machine for cleaning and peeling vegetables. Frederick Groos, Naples, N. Y.

479,580.—Soluble chocolate. Servetus T. Achor, Brooklyn, N. Y.

A cake composed of chocolate, cream and sugar and having incorporated such an additional amount of sugar as will render the cake readily disintegrable in water and provided with a protective coating.

479,581.—Process of making soluble chocolate. Servetus T. Achor, Brooklyn, N. Y.

The process consists in first making a paste of chocolate or cocoa, cream and sugar, then incorporating an additional amount of sugar, molding to form cakes, immersing such cakes in a thick sirup to obtain a crystalline coating.

479,617.—Separator for crushed cement, etc. Joseph R. Berthelet, Milwaukee, Wis.

479,640.—Compound for preserving the color of finishing-bricks. Jacob D. Graybill, Shreveport, La.

479,647.—Gas generator. John J. Kirkham, Terre Haute, Ind.

479,673.—Apparatus for producing variegated lights. Frank L. M. Smith and William J. Bryan, Chicago, Ill.

479,689.—Manufacture of rose or orange stained glass. Franz Wolz, Klostergrab, Austria-Hungary.

The molten glass is mixed with selenium and cadmium sulphide.

479,690.—Oil and vapor burner. William H. Wilder, Florence, Mass.

479,707.—Apparatus for producing mixtures of steam and hot air. Edward Field, London, England.

479,710.—Manufacture of disinfectants. Heinrich Heidenhain, Chicago, Ill.

Acetate of soda is melted and then one-third of its weight of beta naphthol is added to the molten mass and the mixture finally allowed to harden. A white powder readily soluble in water and alcohol.

479,743.—Process of mounting metallic ornaments upon glass, etc. Charles B. Headley and John S. Carron, Philadelphia, Pa.

479,747.—Oil and vapor burner. John A. Lannert and William R. Jearous, Cleveland, Ohio, and William H. Wilder, Florence, Mass.

479,753.—Secondary battery. Arthur E. Colgate, New York, N. Y.

479,759.—Proportional meter. William D. Hawley and Silas J. Hogan, Syracuse, N. Y.

479,761.—Temperature regulator. Washington H. Kilbourn, Greenfield, Mass.

479,767.—Smoke consuming apparatus for boiler and other furnaces. Wesley Smith, Toledo, Ohio.

479,769.—Hot air furnace. William Thuener, Jr., and Paul Herchenbach, St. Louis, Mo.

Issued August 2, 1892.

479,778.—Apparatus for cooling liquids. Peter Bender, Mannheim, Germany.

479,781.—Process of purifying liquids. Courtland W. Brunson, Hamilton, Ohio.

479,785.—Paint. Samuel P. Citizen, Terre Haute, Ind. A paint consisting of rosin oil, sulphate of copper, and Chattanooga red.

479,786.—Galvanic battery. Martin M. Clark, Chicago, Ill.

479,807.—Micrometer-calipers. Edwin L. Holcomb, Springfield, Mass

479,827.—Apparatus for kneading dough and shaping it into loaves.

479,835.—Storage battery plate. Harry G. Osburn. Chicago, Ill.

479,849.—Thermostat. Thomas W. Shepherd, Peabody, Mass.

479,852. } Weighing machine. Ephriam W. Spear, Boston, Mass.
479,853. }

479,855.—Fluid motor. Henry C. Stilwell, Dayton, Ohio.

479,865. } Apparatus for purifying sewage. John Wilson, New York,
479,866. } N. Y.

479,869.—Gas water heater. Walter S. Wright, Chicago, Ill.

479,877.—Pump for refrigerating apparatus. Max Grimm, West Hoboken, N. J.

479,882.—Apparatus for removing iron and alumina. Samuel Hughes, Charleston, S. C.

479,886.—Electric current regulator. Alvan S. Krotz, Defiance, Ohio.

479,887.—Galvanic battery. Felix de Lalande, Paris, France.

479,925.—Double salts of fluoride of antimony and sulphate of ammonia. Carl Wachendorff, Oestrich, Germany.

479,935.—Solution of myrrh resin and mode of making the same. Adolf Flügge, Frankfort-on-the-Main, Germany.

A solution of myrrh resin in castor oil prepared by dissolving myrrh in alcohol and castor oil, filtering from any insoluble matter, and finally driving off the alcohol.

479,941.—Influence generator of electricity. William Henry, Detroit, Mich.

479,953.—Process of separating powdered or finally divided particles. Orrin B. Peck, Chicago, Ill.

479,954.—Centrifugal ore separator. Orrin B. Peck, Chicago, Ill.

479,955. Centrifugal ore separator. Orrin B. Peck, Chicago, Ill.

479,967.—Plastic composition. Raphael G. De Vassau, Paris, France.

A composition consisting of one or two volumes of fragments of powder of cork and two to one volumes of an agglutinant composed of plaster of paris, dextrine, sesquioxide of iron, and an oxychloride, such as the oxychloride of zinc.

479,970.—Method of preserving eggs. Eugene T. Burnette, Haywards, Cal.

The eggs are submitted to the fumes arising from the combustion of a mixture of chlorate of potash, sugar and salicylic acid.

479,988.—Method of restoring nitrating acids. Hudson Maxim, New York, N. Y.

Dry nitrate is added to the weakened mixture of nitric and sulphuric acids, and the sulphate allowed to crystallize and then removed by centrifugals.

480,028.—Apparatus for making bleaching powder. Edmund C. Nation, Peekskill, N. Y.

480,033.—Method of preparing battery solutions. Edward Poppowitsch, Brooklyn, N. Y.

A method for preparing saturated battery solutions such as "bichromate of potash or analagous depolarizing salt for use in a voltaic battery, consisting in suspending a mass of bichromate crystals in a volume of water at a point near the bottom of the containing vessel until the lower portion of the volume is completely saturated, then raising the mass a short distance until an additional portion of the volume is completely saturated, and continuing the successive steps until the entire or complete saturation is effected."

480,038.—Testing apparatus for electric lighting circuits. Charles H. Rudd, Evanston, Ill.

480,039.—Device for measuring electrical currents. Charles H. Rudd, Evanston, Ill.

480,084.—Machine for decorticating ramie, etc. Walter T. Forbes, Atlanta, Ga.

480,089.—Compressed air motor. Paul Gifford, Paris, France.

480,094.—Composition for and method of making heads and limbs of dolls. Solomon D. Hoffmann, Moscow, Russia.

The method for producing the heads and limbs of dolls "consist in reducing glue, glycerine, zinc oxide and Japanese wax to a liquid state, pouring the liquid into molds, smoothing the molded mask, dipping the mask in a bath of glue, glycerine, white zinc oxide, Japanese wax and coloring-matter reduced to a thin liquid, and finally decorating the molded article and immersing it in its decorated state in a bath of collodion."

480,102.—Process of bleaching. Samuel D. Keene, Providence, R. I.

A process for bleaching fibrous or porous materials by "first, placing the material or substance, in a dry condition, within a keir; second, exhausting the air from the keir to form a vacuum; third, admitting the bleaching chemic to the keir at atmospheric pressure; fourth, creating a considerably increased artificial pressure upon the stationary body of chemic within the keir; fifth, removing the chemic from the keir; sixth, repeating the second, third, fourth and fifth steps in connection with the same; seventh, repeating said second to fifth steps inclusive in connection with the washing liquid, and finally removing the material or substance from the keir and drying the same."

480,103.—Combined radiating and hot water or air heating furnace. John H. Keyser, New York, N. Y.

480,109.—Process of recovering sulphur, carbonate of soda and iron oxide. George Lunge, Zurich, Switzerland, and James Dewar, Cambridge, England.

Intended for the residue obtained by decomposing sodium sulphide with a ferrite. Process consists in acting on the moist residue with a suitable mixture of carbonic acid and oxygen.

480,134.—Brick kiln. William Radford, San Francisco, Cal.

480,151.—Rheostat. Charles W. Tobey, New Bedford, Mass.

480,161.—Apparatus for the manufacture of gas. Joseph Askins, Lima, Ohio.

480,193.—Air compressor. John G. Haines, Omaha, Neb.

480,211.—Apparatus for the manufacture of gas. Lewis C. Parker, Indianapolis, Ind.

480,232.—Apparatus for melting and casting metals. Craft C. Carroll, New York, N. Y.

480,233.—Alloy. Alexander I. Cocker, George W. Collyer and Clarence Haines, Tarrytown, N. Y.

An alloy of iron and tin prepared by fusing the metal in presence of a flux composed of borax, carbonate of iron, sal-ammoniac and salt.

480,234.—Manufacture of asphaltum. Jesse A. Dubbs, Allegheny, Pa.

480,235.—Manufacture of asphaltum. Jesse A. Dubbs, Allegheny, Pa.

Issued August 9, 1892.

480,248.—Apparatus for manufacturing gas. Joseph H. Collins, Jr., Philadelphia, Pa., and Isaac N. Knapp, Greenwich, Conn.

480,249.—Gas producing apparatus. Joseph H. Collins, Jr., Philadelphia, Pa., and Isaac N. Knapp, Paterson, N. J.; Rebecca S. Collins and William J. Collins.

480,253.—Drying kiln. Charles J. Dion, St. Paul, Minn.

480,266.—Secondary battery plates. Edward R. Knowles, Brooklyn, N. Y.

An alloy of about 82 parts lead, 16 parts tin, 1.9 parts antimony and 0.1 part arsenic.

480,283.—Wool washing machine. Frederick G. Sargent and Allan C. Sargent, Graniteville, Mass.

480,286.—Generator for the vaporization of liquids. Leon Serpollet, Paris, France.

480,301.—Ore concentrator. Charles B. Walker, Trinidad, Col.

480,311. } Process of desulphurizing oils. Otto P. Amend and Josiah
480,312. } H. Macy, Harrison, N. Y.

The oil is vaporized and the vapor exposed to a degree of heat, at or above the boiling point of sulphur, and then subjected to the action of oxidizing agents and alkalies.

480,326.—Diazo dye. Meinhard Hoffmann, Frankfort-on-the-Main, Germany.

One molecule of the amidonaphthodisulpho-acid H is introduced into the solution of one molecule of a diazo body in presence of a mineral acid; the solution is made alkaline and a second molecule of a diazo body is added; the separation of the dyestuff is completed by means of common salt.

The coloring matter is a greenish black powder easily soluble in water with a blue color. Difficultly soluble in spirit. Soluble in conc. sulphuric acid with a dark green shade, which on addition of water is changed to blue and a dark blue precipitate.

The dry stuff is composed of two molecules of diazo bodies, such as diazonitrobenzole, diazobenzole, and one molecule of amidonaphthodisulpho acid H.

480,334.—Process of preparing cellulose from wood. Hermann A. A. Maste, Arnsberg, Germany.

The process consists "in first softening the ligneous material by steam heat, then reducing the pressure in the vessel below that of the atmosphere to free the material from steam and air, then forcing a sulphite solution into the material under repeated variations of pressure, and finally decomposing the intercellular substances by steam heat."

480,366.—Amalgamating apparatus for crushed ores and like reduced bodies. William W. Fyfe, London, England.

480,376.—Process of making tanning extracts. Walton C. Tiffany, New York, N. Y.

Canaigre root is macerated in water at 140° F. and the infusion evaporated in vacuum.

480,381.—Combined cement mill and furnace. Henry H. Bourne, Trinidad, Col.

480,384.—Galvanic battery. Herbert H. Dow, Midland, Mich.

480,405.—Process of treating ores containing hydrated sesquioxide of iron. Clemens Jones, Easton, Pa.

480,416.—Art of desilverizing argentiferous lead. Heinrich Roessler, Frankfort-on-the-Main, Germany.

The lead is fused with an alloy of zinc and aluminium in the proportions of not more than one-half of one per cent. of aluminium to the zinc.

480,445.—Aluminium alloy. Christopher F. Whitney, Newton, Mass.

An alloy of aluminium 80 per cent. or more; a malleable metal, such as copper, 12 per cent. or less, and a metal of high fusing point, such as nickel, eight per cent. or less.

480,491.—Electrolytic cell. Elisha B. Cutten, New York, N. Y.

480,492.—Method of electrolytically producing potassium chlorate. Elisha B. Cutten, New York, N. Y.

Magnesium chloride is electrolyzed in the presence of potassium chloride and slaked lime. A solution of magnesium chloride is placed in contact "with the cathode and potassium chloride, magnesium chloride, and slaked lime in contact with the anode, the said magnesium chloride being separated from said potassium chloride, magnesium chloride and slaked lime by a porous partition, and then electrolyzing, whereby potassium chlorate is produced at the anode and magnesia at the cathrode."

480,493.—Method of electrolytically producing potassium chlorate. Elisha B. Cutten, New York, N. Y.

480,502.—Dyeing or scouring machine. John H. Lorimer, Philadelphia, Pa.

480,549.—Phosphate separator and screen washer. George R. Boaz, Tampa, Fla.

480,554.—Bleaching compound. William B. Brittingham, New York, N. Y.

A compound consisting of the tungstate of an alkali combined with a hypochlorite.

480,571.—Diffusion apparatus. Samuel Faron, Pahala, Kau, Hawaii.

480,575.—Electric accumulator. Giovanni Gandini, Lodi, Italy.

480,591.—Composition of matter for the manufacture of artificial stone. Joseph E. Keseling and Charles Fuchs, Jr., New York, N. Y.

Consists of a basic cement of oxide of magnesium and neutral chloride of magnesium, asphaltum, and sand or analogous material.

480,624.—Fumigator. John T. Phelan, Cambridge, Mass.

480,647.—Quartz crusher. Andreas P. Anderson, Oriental, Nev.

480,669.—Perfumed starch and process of making the same. Frederick C. Norfolk, Des Moines, Iowa.

Paraffin is saturated with perfume and added to ordinary dry starch. Borax is also added.

480,686.—Process of refining fume. Frank L. Bartlett, Portland, Me.

480,687.—Gelatinous food product. Richard B. Beaumont, Rutherford, N. J.

480,699.—Smelting furnace. John S. Oliver, Brooklyn, N. Y.

Issued August 16, 1892.

480,702.—Apparatus for reclaiming soda ash. Lewis D. Armstrong, Lock Haven, Pa.; Meylert M. Armstrong, administrator of Lewis D. Armstrong.

480,761.—Stone and ore crushing machine. Edgar H. Booth, San Francisco, Cal.

480,770.—Paper making machine. Edward E. Johnson, Seneca Falls, N. Y.

480,812.—Diffusion apparatus. Edward F. Dyer and Harold P. Dyer, Cleveland, Ohio.

480,840.—Soap. Henry J. Echer and George F. Echer, Philadelphia, Pa.

A soap composed of water, white soap, oxide of iron and pulverized quartz.

480,842.—Distilling apparatus. Alfred Feldmann, Bremen, Germany.

480,860.—Ore concentrator. Philip R. Stanhope, Dumont, Col., and Frank Wood, Brooklyn, N. Y.

480,883.—Storage battery. Edward P. Usher, Grafton, Mass.

480,884.—Battery cell. Edward P. Usher, Grafton, Mass.

480,885.—Storage battery. Edward P. Usher, Grafton, Mass.

480,886.
480,887. } Battery plates. Edward P. Usher, Grafton, Mass.

480,891.—Temperature regulating device for electrical circuits. Edward Weston, Newark, N. J.

480,892.—Rheostat. Edward Weston, Newark, N. J.

480,893.—Rheostat. Edward Weston, Newark, N. J.

480,894.
480,895.
480,896.
480,897-98-99. } Electrical measuring instrument. Edward Weston, Newark, N. J.

480,912.—Machine for re-pressing bricks. William W. Wallace and Raymond C. Penfield, Willoughby, Ohio.

480,919.—Apparatus for manufacturing gas. Walter P. Elliott, New York, N. Y.

480,920.—Process of recovering tin from tin plate. Manuel R. Garcia, London, England.

480,928.—Heater and cooler for fermented malt liquors. John H. Kersenbrock, Columbus, Neb.

480,934.—Acid-resisting composition for lining tanks. Joshua Norton, Jr., Chatham, Canada.

"A lining of a digester composed of three superimposed layers or coats, the first consisting of hydraulic cement and other refractory material applied to the metal of the digester, the second containing hydraulic cement mingled with pulverized firebrick and other refractory material and imposed upon the first, and the third containing hydraulic cement and refractory materials upon the second."

480,935. } Brick kilns. James W. Penfield, Willoughby, Ohio.
480,936. }

480,940.—Brick kiln. William H. B. Stout, Chicago, Ill.

480,956.—Process of treating base brelliar amalgam. Bernard Moebius, New York, N. Y.

The amalgam is charged into an "apparatus for distilling off and collecting the mercury, subjecting the heated charge to a comminuting action, while at the same time oxidizing the base metals by a current of air, and leaching the finely divided residue by sulphuric acid."

481,004.—Apparatus for corroding lead. George D. Coleman, Chicago, Ill.

481,005.—Art of making lead protoxide. George D. Coleman, Chicago, Ill.

A quantity of comminuted lead in a state of agitation is subjected to the action of atmospheric air and water in a suitable vessel at a temperature of 75° to 150° Fahrenheit. The oxide is removed as fast as formed, and the lead replaced by a regulated supply of comminuted lead. The temperature is regulated by a proper inflow and outflow of water through the corroding vessel.

481,006.—Process of manufacturing white lead. George D. Coleman, Chicago, Ill.

"The art of making white lead by the agitation of lead in a comminuted state in the presence of water, air and carbonic acid, the same consisting in carrying on the process at a regulated temperature of from 75° to 150° F. and under a pressure of from fifteen to thirty pounds, and preventing by a flow of water an abnormal rise in such temperature," etc.

481,007.—Art of making white lead. George D. Coleman, Chicago, Ill.

481,023.—Transparent toy or puzzle picture and mode of producing the same. Wilhelm Grüne, Sr., Berlin, Germany.

481,031.—Art of amalgamating silver ore. Alexis Jouin, San Francisco, Cal.

481,061.—Fermenting process. Frederick W. Rueff, San Francisco, Ca

481,075.—Electric battery. Peter Sterns, Charlottenburg, Germany.

481,085.—Heating and ventilating apparatus. Samuel W. Wayson, Detroit, Mich.

481,088.—Hydrocarbon burner. Ambrose Chaney and Edward T. Wires, Terre Haute, Ind.

481,101.—Ore concentrator. William H. H. Bowers, Denver, Col.

481,108.—Apparatus for the consumption of sewer gas. Jacob Eckhardt, St. Louis, Mo.

481,109.—Filtering or purifying feed water. James B. Edmiston, Liverpool, England.

481,146.—Refrigerating machine. Charles F. Miller, Lancaster, Pa.

481,147.—Apparatus for drying or cremating garbage and fecal matter. John H. Parke, Philadelphia, Pa.

Issued August 23, 1892.

481,212.—Drying apparatus. William D. Sunderlin, Green Island, N. Y.

481,240.—Hydrocarbon gas black machine. Lester J. McNutt, Warren, Pa.

481,249.—Aeration of liquids. Edward Williams, Aberayron, England.

481,273.—Hydrocarbon burner and device for automatically feeding the same. Charles F. A. Convert, Chicago, Ill.

481,279.—Composition of matter for the manufacture of artificial stone. Joseph E. Keseling and Charles Fuchs, Jr., New York, N. Y.

481,282.—Art of painting with distemper and other colors. Alfons Pereira, Stuttgart, Germany.

481,287.—Apparatus for recording and registering quantities of steam, etc. Franz Seiler, Mannheim, Germany.

481,310.—Gage for measuring the velocity of fluids. Stillman W. Robinson, Columbus, Ohio.

481,313.—Process of making malleable iron castings. Benjamin Talbot, Chattanooga, Tenn.

481,391.—Recovering waste products of petroleum. Jacob P. Engle, San Francisco, Cal.

481,392.—Separation of waste products of petroleum distillation. Jacob P. Engle, San Francisco, Cal.

481,407.—Production of caustic alkalies and chlorine. Farnham M. Lyte, London, England.

481,407.—A conjoint process of continuously producing alkali and chlorine, "which consists in decomposing an alkaline nitrate by heating it with ferric oxide to evolve nitrous fumes, decomposing the residue by boiling water into caustic alkali free from iron and a precipitate of ferric hydrate converting the nitrous fumes into aqueous nitric acid, dissolving plumbicoxide the rein, recipitating plumbic chloride, fusing it, and decomposing it electrolytically into chlorine and metallic lead, and finally converting this (or any other) lead into plumbic oxide and the ferric hydrate into ferric oxide for recommencing the cycle."

481,414.—Process of bleaching. Joseph A. Myrick, Salisbury, N. C.

The fiber is successively bleached in baths of chloride of lime and sulphurous acid.

481,438.—Coal or ore jigger and washer. Sebastian Stutz, Pittsburg, Pa.

481,474.—Magnetic separator. Gurdon Conkling, Glens Falls, N. Y.

481,499.—Process of treating sulphide ores of zinc and lead. George T. Lewis, Philadelphia, Pa., and Carl V. Petrams, Camden, N. J.

481,500.—Process of treating sulphide ores. George T. Lewis, Philadelphia, Pa., and Carl V. Petrams, Camden, N. J.

481,502.—Purification of fatty substances. Jules Massignon, Paris, France.

481,516.—Composition for softening enameled leather. Robert L. Tudor, Cincinnati, Ohio.

481,532.—Pulverizer. George H. Smith, Chicago, Ill.

Issued August 30, 1892.

481,550.—Ore washer and concentrator. Arthur L. Daña, Colorado Springs, Col.

481,560.—Secondary battery. William W. Griscom, Haverford College, Pa.

481,578.—Art of making artificial honey cells and combs. Edgar T. Mason and Maximilian Moskovits, Kansas City, Mo.

481,591.—Process of dyeing with alizarin. Henri N. Schaeffer, Lowell, Mass.

The cloth or fibre is first treated with a soluble modification of alizarin consisting of a soluble salt of boracic acid and alizarin and then with a mordant.

481,606.—Filter. James M. Wasson, Peoria, Ill.

481,623.—Apparatus for heating compressed air. Robert A. Parke, New York, N. Y.

481,664.—Galvanic battery. William J. Engledue, Byfleet, England.

481,676.—Apparatus for generating ozone. Christopher C. Sharp, Chicago, Ill.

481,680.—Apparatus for treating the refuse of cities. Jacob J. Storer, East Orange, N. J.

481,683.—Method of and apparatus for extracting gold and silver from their ores. Jonas W. Aylsworth, Orange, and Arthur C. Payne, Elizabeth, N. J.

481,685.—Artificial musk and process of making the same. Albert Bauer, Gispersleben, near Erfurt, Germany.

An ether of "metacresol" or substituted phenols is mixed with metallic chloride, heated, mixed with water and the butylated cresolether isolated, resulting in an aromatic colorless liquid. The ether is then introduced into fuming nitric (or nitric and sulphuric) acid, heated, and then crystallized from a suitable solvent such as alcohol. The product is a white crystalline powder having the natural odor of musk and is a trinitro- derivative of the butylated or analogous metacresol.

481,687.—Malt drying kiln. Carl G. Bosch, Davenport, Iowa.

481,703.—Reverberatory smelting furnace. Henry Mathey, South Riverside, Cal.

481,838.—Impregnating liquids with gases. Ulrich Bachmann, Mission San José, Cal.

481,860.—Soap. John Gray and Abner Simmons, Corsicana, Tex.

481,869.—Basic lining. Jacob Reese, Pittsburg, Pa.

A mixture of previously highly fired, shrunk and indurated lime and an adhesive carbonaceous substance.

481,879.—Apparatus for rectifying glycerine. Robert O. Unglaub, Pendleton, England.

481,881.—Manufacture of iron and steel. James P. Witherson, Allegheny, Pa.

481,885—Open hearth furnace. Henry Aiken, Pittsburg, Pa., Frederick W. Wood, Baltimore, Md., and Harry H. Campbell, Steelton, Pa.

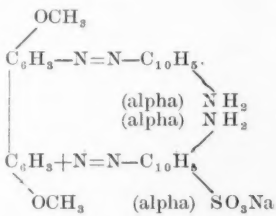
Issued September 6, 1892.

481,921.—Apparatus for cutting minerals. Llewelyn B. Atkinson and Henry W. Ravenshaw, London, and Frederick Mori, Leeds, England.

481,925.—Process for making whiskey. William E. Bradley, Frankfort, Ky.

481,934.—Red dye and process of making the same. Carl Dinsberg, Elberfeld, Germany.

The dyestuff has the formula



and is obtained by combining one molecular proportion of tetrazodiphenol ether with two molecular proportions of alpha-naphthylamine monosulpho-acid. It is a dark brown amorphous powder, easily soluble in water, with bluish red color; in sulphuric acid with deep blue color, the solution depositing deep blue flakes on the addition of sufficient water, leaving the supernatant liquid colorless.

481,949.—Composition of matter for journal bearings. Philip H. Holmes, Gardiner, Me.

The composition consists of plumbago, carbonized fibre, deposited carbon and an uncarbonized oil binder.

481,950.—Blast furnace. Malvern W. Iles, Denver, Col.

481,955.—Ammonia absorber. Frederick Kaiser, Knoxville, Tenn.

481,958.—Malting apparatus. Gustave A. Krause, Milwaukee, Wis.

481,975.—Meter for alternating electric currents. Oliver B. Schallenberges, Rochester, N. Y.

481,979.—Apparatus for electrically purifying water. Lucius T. Stanley, Brooklyn, N. Y.

481,999.—Electric furnace generator. Emile Berliner, Washington, D. C.

482,001.—Process of and apparatus for purifying, refining and carburizing metals. Benjamin Brazelle, St. Louis, Mo.

482,012.—Battery connector. Edward R. Knowles, Brooklyn, N. Y.

482,018.—Apparatus for purifying and refining alcoholic liquors and other liquids. Samuel Mason, Jr., Manchester, England.

482,042.—Apparatus for cutting and spreading glue. Charles Keller, Springdale, Pa.

482,043. } Storage batteries. Patrick Kennedy and Charles J. Diss,
482,044. } Brooklyn, N. Y.

482,052.—Apparatus for purifying sewage. John Wilson, New York, N. Y.

482,053.—Apparatus for purifying sewage. John Wilson, New York, N. Y.

482,069.—Feed water heater. John J. Wilson, Wahoo, Neb.

482,076.—Apparatus for heating water. Henry B. Clarke, Chicago, Ill.

482,093.—Rheostat. Harry W. Lawrence, Denver, Colo.

482,101.—Process of making disinfectants. Bruno R. Seifert, Radebeul, Germany.

A process for converting the difficultly soluble phenols into disinfecting mixtures which are easily soluble. "Crude carbolic acid" and phenols of a higher boiling point than carbolic acid are mixed "with water and with a metallic salt of an aromatic compound of the classes of aromatic acids and phenols."

482,102.—Disinfectant. Bruno R. Seifert, Radebeul, Germany.

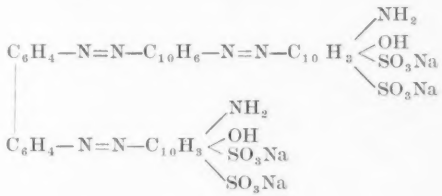
A disinfecting compound consisting of a mixture of cresol or matter containing cresol, such as crude carbolic acid and a metallic salt of an aromatic compound of the classes of aromatic acids and phenols.

482,106.—Azo coloring matter. Moritz Ulrich and Johannes Bammann, Eberfeld, Germany.

A blue direct dyeing coloring matter prepared "by combining one molecular proportion of tetrazo-diphenyl chloride with one molecular proportion of alpha-naphthylamine, by further diazotizing the thus formed intermediate product, and by subsequently combining the obtained hexazo

compound with two molecular proportions of the sodium salt of the 1.8 amido-naphthol betadisulpho-acid."

The dyestuff corresponds to the formula:



It produces a grayish-black powder easily soluble in hot water with dark blue color. This solution on the addition of acids deposits a dark blue precipitate. The dyestuff is soluble in solutions of sodium carbonate and ammonia with dark blue color, and in soda-lye with reddish-blue color, in conc. sulphuric acid with greenish-blue color separating a flaky blue precipitate on addition of an excess of water. Unmordanted cotton in alkaline soap bath is dyed greenish blue. The dyed cotton, if passed through an aqueous solution of sodium nitrite and diluted mineral acid, washed and placed in an alkaline solution of beta-napthol, changes this greenish shade to black.

The dinitroso compounds of diphenylpiperazin, ditolylpiperazin, dixylylpiperazin, dinaphthylpiperazin, or the sulpho-acids or other substitution products thereof are treated with sulphurous acid, sulphur dioxide or alkaline bisulphites.

482,108.—Process of making piperazin. Paul Volkmann, Elberfeld, Germany.

482,110.—Apparatus or machine for cleaning bottles. George E. Wallace, Belfast, Me.

482,117.—Regenerative gas furnace. Friederich Danner, Tarentum, Pa.

482,140.—Filter. Bonifacio M. Santurio, Buenos Ayres, Argentine Republic.

482,141.—Gas purifier and condenser. Gottlieb Scharfe, Annapolis, Md.

482,148.—Telltale for electrolytic refineries. Francis B. Badt, Chicago, Ill.

482,157.—Electric arc lamp. John T. Birch, Pittsburg, Pa.

482,176.—Composition of matter. Philip H. Holmes, Gardiner, Me.

Plumbago and fibre are mixed, pressed, dried, immersed in oil and finally baked to carbonize both oil and fibre. Unmordanted cotton is dyed by it in a soap bath magnificently bluish red.

482,179.—Apparatus for washing sugar. Richard P. Johnson, Boston, Mass.

482,183.—Water circulator and purifier for steam boilers. James MacDonald, Los Angeles, Cal.

482,184.—Pulp engine. Guyon Miller, Downington, Pa.

482,199.—Process of finishing leather. John Sawzenbacher, Canfield, Ohio.

482,205.—Machine for preparing fibre. Harold Serrell, New York, N. Y.

482,213.—Process for reducing unsmelted ores. Jacob T. Wainwright, Chicago, Ill.

482,233.—Ammonia dipper valve. Jacob Dreisöner, St. Louis, Mo.

482,249.—Lubricant. Decatur Harmon, Ionia, Mich.

482,252.—Brick machine. George T. Jacobs, Washington, D. C.

482,268.—Refrigerating apparatus. Carleton W. Nason and Charles H. Leinert, New York, N. Y.

482,310.—Process of manufacturing composition journal bearings. Philip H. Holmes, Gardiner, Me.

482,315.—Air pump for condensers. Brun V. Nordberg, Milwaukee, Wis.

482,322.—Ore concentrator. Charles E. Seymour, Lake Geneva, Wis.

482,323.—Magnetic separator for ore concentrators. Charles E. Seymour, Lake Geneva, Wis.

482,324.—Electric meter. Francis Trague, London, England.

11,267.—Reissue. Manufacture of yellow dyes. Mainhard Hoffmann, Mainkur, Germany.

Issued September 13, 1892.

482,330.—Ore crusher and grinder. Nelson F. Acers, Kansas City, Mo.

482,340.—Apparatus for evaporating liquids. Charles W. Cooper, New York, N. Y.

482,367.—Composition of matter for artificial stone. Joseph E. Keseling and Charles Fuchs, Jr., New York, N. Y.

A basic cement made of chloride and oxide of magnesium, sand or analogous filling material, a solution of asphaltum and a solution of albumen and caseine.

482,372.—Process of recovering nitro-glycerin from waste acids. James Lawrence, Paulsbrough, N. J.

482,396.—Art of manufacturing sheet-iron. Benjamin Talbot, Chattanooga, Tenn.

482,403.—Insecticide. Joseph J. Carter, Alvin, Texas.

482,425.—Galvanic battery. Thomas T. Eckert, New York, N. Y.

482,436.—Filter. William M. Deutsch, Elizabeth, N. J.

482,438.—Process of reducing zinc. Christopher James, Swansea, England.

482,444.—Voltaic pile. William E. Washburn, Cedar Rapids, Iowa.

482,477.—Process of bleaching. Carl J. E. de Haën, List, Germany.

The goods are subjected to a bath of peroxide of sodium and a salt such as sulphate or chloride of magnesium.

482,489.—Apparatus for pickling metal plates. Daniel M. Somers and William H. Atkinson, Brooklyn, N. Y.

482,508.—Apparatus for burning oil. George H. Harvey, Pittsburgh, Pa.

482,515.—Apparatus for purifying water. James H. Blessing, Albany, N. Y.

482,533.—Fuse for explosive projectiles or shells. James C. Thompson, Brockley, England.

482,537.—Method of disintegrating vegetable substances. Henry J. Bird, Hoboken, N. J.

482,445.—Composition of matter for wall decoration. George A. Casselman, Fort Dodge, Iowa.

482,549.—Means for controlling electric generation. Thomas A. Edison, Menlo Park, N. J.

482,552.—Dental tool sterilizer. William G. Flanders, New York, N. Y.

482,577.—Composition of matter for the extraction of gold and silver from ores. Edward D. Kendall, Brooklyn, N. Y.

482,581.—Oil extracting apparatus. Charles Mann, New York, N. Y.

482,582.—Feeding device for ore washing machines. Carl A. E. Meinicke, Clausthal, Germany.

482,583.—Oil purifier and reservoir. Rudolph Metz, Philadelphia, Pa.

482,586.—Electrical furnace. Thomas Parker, Newbridge, England.

482,596.—Method for finishing bookbinders' cloth. Thomas A. and William H. Sutton, Salford, England.

482,604.—Method of producing an imitation of brocade or gold cloth. Franz P. Werner, Munich, Germany,

482,661.—Process of and apparatus for degreasing leather. Frederick N. Turney, Nottingham, England.

482,667.—Apparatus for the pasteurization of beer. Samuel S. Woodbury, Bradford, Pa.

482,694.—Ice machine. Magnus J. Palson, Gloucester, Mass.

Issued September 20, 1892.

482,718.—Composition coating for paper tubes. Sigmund Bergmann, New York, N. Y.

482,724.—Electrolytic apparatus. Thomas Craney, Bay City, Mich.

482,738.—Effervescent beverage. Olive M. Hechtman, Washington, D. C.

482,795.—Rock crusher. Horace L. Kent, Boston, Mass.

482,823.—Process of drying and disintegrating clay, etc. Franklin D. Cummer, Cleveland, Ohio.

482,834.—Liquid fuel furnace. George Rose, Glasgow, Scotland.

482,841.—Apparatus for the manufacture of aerated liquids. Luther G. and Swartz M. Chinnery, London, England.

482,842.—Pressure regulator. George Harris, Chicago, Ill.

482,843.—Apparatus for purifying and aging liquors. Christian Heintz, Buffalo, N. Y.

482,853.—Ore separator. Horace H. Taylor, San Francisco, Cal.

482,855.—Machine for decorticating wood. Abram Tilton, Brooklyn, and August Hormel, New York, N. Y.

482,876.—Gas compressor for refrigerating machines. Bernhard H. Munsch, Hastedt, Germany.

482,879.—Method of and apparatus for tempering wire. Fred Purdy, Englewood, Ill.

482,881.—Apparatus for charging beer with carbonic acid. John B. Stobaeus, Newark, N. J.

482,893. } Bottle filling machines. George Claus, Jr., Elizabeth, and
482,894. } Albert M. Schomburg, Newark, N. J.

482,897.—Method of making cheese. Johan D. Frederiksen, Little Falls, N. Y.

482,914.—Bituminous rock reducing machine. John T. Cochran, Oakland, Cal.

482,920.—Vapor burner. Harry S. Giles, Philadelphia, Pa.

482,960.—Machine for combing fibrous material. Geo. E. Donisthorpe and Taylor Burrows, London, England.

482,979.—Storage battery. Edward R. Knowles, Brooklyn, N. Y.

482,995.—Process for extracting fat from wool. William T. Cutter, East Lyme, Conn.

483,003.—Apparatus for carbureting air. James E. Mendenhall, Springfield, Ohio.

483,005.—Apparatus for the manufacture of gas. Thomas McBride, Philadelphia, Pa.

483,018.—Drying stove for bricks or other materials. Albert Schaaf, Halle, Germany.

483,022.—Apparatus for bleaching cane juice. August F. Slangerup, New Orleans, La.

483,063.—Apparatus for making vinegar. Russell M. Hughes, Louisville, Ky.

483,067.—Preparation for beverages. Adele S. Kineger, Hannahfield, Lenzie, Scotland.

483,099. } Hydrocarbon burning apparatus. James H. Bullard, Spring-
483,100. } field, Mass.

483,107.—Apparatus for making gas. Ira S. Elkins, New York, and Reinhold Bocklen, Brooklyn, N. Y.

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483,124.—Electric heater. Thomas Ahearn, Ottawa, Canada.

483,141.—Process for purifying tannic extracts. Georges Delvaux, Montigny-on-the-Loing, France.

483,143.—Composition of matter for cleaning brownstone, etc. Henry J. and George A. Echer, Philadelphia, Pa.

483,148.—Oil filter. John S. Hall, New York, N. Y.

483,168.—Method of measuring the strength of magnets. Charles H. Rudd, Evanston, Ill.

483,176.—Device for collecting metallic fumes. Dennis Sheedy and Malvern W. Iles, Denver, Col.

483,179.—Art of making composite millstones. Thomas L. Sturtevant, Framingham, Mass.

483,230.—Filter. Charles C. Lockstaedt and John F. Gubbins, Chicago, Ill.

483,237.—Smoke consuming furnace. William Oehlstrom, Cleveland, Ohio.

483,245.—Process for separating tin from other metals. Iras A. F. Bang and Marie C. A. Ruffin, Paris, France.

483,259.—Method and apparatus for aerating liquids. James H. Minto, Liverpool, England.

483,290.—Process of making salicylaldehydealphaphenylmethyl hydrazone. Israel Roos, Frankfort-on-the-Main, Germany.

483,335.—Apparatus for degumming silk or other fibers. William H. Whiteley, Darby, Pa.

483,337.—Beverage of fermented and unfermented wort and process of making the same. Edwin Adam, Philadelphia, Pa.

483,338.—Process of making malt beverages. Edwin Adam, Philadelphia, Pa.

483,339.—Thermostat. Ira F. Beers and Frederic C. Beers, Elmira, New York.

483,352.—Apparatus for heating boilers by gaseous fuel. James L. Hastings, Philadelphia, Pa.

483,368.—Process of making azo colors. Daniel A. Rosenstiehl, Paris, France.

483,395.—Apparatus for cooling beer. Edward Seitz, Peoria, Ill.

483,397.—Apparatus for cooling water in the manufacture of ice. Albert Smith, Colorado Springs, Col.

483,446.—Ink. Charles M. Higgins, Brooklyn, N. Y.

483,447.—Ink. Charles M. Higgins, Brooklyn, N. Y.

483,451.—Waterproof composition. Sylvester Huff, Wabash, Ind.

483,452.—Apparatus for treating phosphate rock. Samuel Hughes and William B. Chisholm, Charleston, S. C.

483,484.—Fumigator. Ferdinand Hoffman, Byron, Cal.

483,489.—Manufacture of gas. Robert M. Bidelman, Adrian, Mich.

483,500.—Refrigerating apparatus. Charles E. Pierce, Altamonte Springs, Fla.

483,516.—Pressure regulator. Van H. Higgins and Wm. D. Smith, Chicago, Ill.

483,517.—Mercurial gas governor. Van H. Higgins and William D. Smith, Chicago, Ill.

J. F. G.